

COUNCIL FOR SCIENCES OF INDONESIA  
(MADJELIS ILMU PENGETAHUAN INDONESIA)

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# INDONESIAN ABSTRACTS

Abstracts on current scientific Indonesian literature

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### **N O T E**

This issue of "Indonesian Abstracts" contains 46 papers presented at the First National Science Congress held under the auspices of the Council for Sciences of Indonesia in August 1958 at Malang.

In total 135 papers were presented at the Congress. Abstracts of the papers which are not yet included in the present issue will be inserted in "Indonesian Abstracts" Vol I No. 5

The Editors

## O GENERALITIES 06 MUSEUMS

069.1

### AMIR SUTAARGA.

Museum ethnografi — perkembangannja dizaman sekarang (Ethnographical museum — its development today).

An ethnographical museum is a museum at which non European cultural articles are exhibited. Examples of the museum are Musée de l'Homme in Paris, Rijksmuseum voor Volkenkunde in Leiden, Ethnographical division of the National Museet in Kopenhagen or Ethnografisk Museet in Göteborg, Sweden. Indonesia is not yet in possession of an ethnographical museum. The main problem faced by ethnographical museums in Europe and in America is the question of racial and national prejudice. This is caused by traditional thoughts of the Europeans toward non-Europeans. The latter have been made as study objects of ethnology and cultural anthropology. Seen from point of view of method of bringing together the collection of the museum to the public two problems are observed, namely 1) the problem of regional prejudice due to the existence of intergroups contact or contact of inter-regional culture, 2) the problem of process of acculturation caused by the contact with foreign civilisation.

In order to be able to solve the above problems, a guiding directive on the method of building up ethnographical museums in Indonesia should be made. Technique of exhibiting materials and of giving information to the public should be carried out in such a way that it will give impression that the museum is also applicable as a means of strengthening the sense of unity of the people.

Ethnographical museums in Indonesia should also be capable of holding exhibitions on the progress in the fields of technology and agricultural industrialisation.

## 1 PHILOSOPHY 14 PHILOSOPHICAL SYSTEMS

140.8

### ALISJAHBANA, S. TAKDIR.

Kebebasan dan nilai dalam kehidupan pribadi, masjarakat dan kebudajaan. (Freedom and values in individual, social and cultural life).

The main idea of this working paper is to put emphasis on the importance of knowledge of human behaviour in solving social and cultural problems. The concept of the mechanism of social phenomena is of significant importance. As for the method of studying social phenomena the best result can be obtained by integrating social and natural sciences as a whole study.

The evolution of mankind is regarded as existing within the scope of the natural evolution. The characteristic of the evolution of human mind is the freedom of selecting, determining and creating values.

The main point is that mankind falls within the bound of the laws of chemical, physical, biological as well as ethical processes.

The whole evolutionary process is depicted as a movement emerging from chaotic order towards successive stages of cosmic, biological and cultural order. Only mankind is in possession of "Geist". In this connection Rohracher's theory concerning the separation of "Seele" and "Geist" is not accepted by the author. Differences between human and animal mind are discussed. Man is compelled continuously to experience himself and the situation in which he finds himself. Animal behaviour is instinctive and in its development it is guided by the need for meeting its "Trieb". The author shares E. Spranger's view that economic, social, political, aesthetical and religious values are bound to the laws of inorganic, vegetative and animal world.

The main problem faced at the present atomic age is to look for ways to select a group of ruling elite which are fully conscious toward the role of inorganic, vegetative and animal potentials and laws in human life. As a consequence this will lead to the existence of decisive meaning of the intellectual life and in such a condition an individual, social and cultural life can be properly maintained.

## 16 THEORY OF KNOWLEDGE

167.7

JEUKEN, M.S.J.

Philosophy and theoretical science.

The relation between theoretical science and philosophy is such as to include both distinction and coherence.

The distinction is made clear by the description of the three levels of thought: the level of science, the level of mathematics and the level of philosophy. The distinction is given with the fact that theoretical science and philosophy show the characteristics of different levels.

The coherence is to be found in the common background of pre-scientific knowledge and in some general principles which are used in science but can be justified only in philosophy. Finally the meaning of philosophy of nature is discussed.

## 3 SOCIAL SCIENCES

### 30 SOCIOLOGY

301.16

KOENTJARANINGRAT.

Saran<sup>2</sup> untuk mempertajam beberapa pengertian dalam lapangan penjelidikan organisasi kemasjarakatan (Suggestion for sharpening some concepts in the field of research of social organization).

For more than a century the study of kinship systems was dominated by a complex of concepts which neglect the interrelated processes working in the various kinship systems. After the Second World War ethnographical studies have intensively increased the collection of data. These have changed

the method of approach in the analysis of kinship system. Indonesian scholars are rather backward in following the development of studies of kinship system in anthropology. Nevertheless recently several articles on the employment of the concepts by some of the scholars. It was observed that the employment of the concepts such as materiarchate and matrilineal systems were unsatisfactory. A number of scholars with the use of their respective methods have submitted some suggestions in analysing the processes occurred in the kinship life of diverse nations in the world.

It is concluded that according to the new views kinship systems should be seen from three viewpoints :

1. From the point of view of range of kinship affiliations. Observed from this aspect it can be determined the existence of three kinship systems namely systems of bilateral, ambilateral and unilateral.
2. From the point of view of principles of descent. Observed from this aspect it can be determined the existence of five kinship systems namely, concentric system, ambilineal, bilineal, matrilineal and patrilineal systems.
3. From the point of view of principles of residence. Observed from this aspect it can be determined the existence of nine kinship systems, namely, the system of bilocal, matrilineal, matrilocal, patrilocal, duolocal, uxorilocal, viralocal, avunculocal and neolocal.

301.17 (821)

#### **MANSJUR, M.D.**

**Minangkabau dan perkembangan adatnya, ditindjau dari sudut sedjarah** (Minangkabau and the development of its custom — a historical outlook).

Ethnologically, the border of Minangkabau area is not similar to the geographical border of the former West Sumatra Residency.

The Minangkabau custom (adat Minangkabau) is a complex of unrecorded rules which are observed by members of its society. Elements weakening the role of the custom are the coming of Islam and the impact of the west namely the cultural and social influence of the western countries diffused to the east in the beginning of the 20th century. The aim of the custom is to make improvement in the various aspects of life of the society, while the religion is aimed at improving the moral condition of and individual. The first armed conflict between the religious group and the adat community occurred with the outbreak of Padri War (1821 — 37). The Dutch authorities have used the adat group as the backbone of their authority. Since the beginning of the activities of the national struggle for freedom in the twentieth century the religious group which opposed the Dutch authority was regarded as upholders and preachers of national ideals.

After the national revolution a vital role played by the religious group was

observed. This has resulted in a marked religious group influence towards the development of the adat and adat law of the area.

In the writer's opinion the development of the adat of Minangkabau particularly with regard to kinship system in areas outside Minangkabau has evolved towards a patrilineal or parental system, in the towns of the region toward parental and in hinterland of the region matrilineal system is still maintained.

It is concluded that the former social form has started to become mouldy and the new one has come up. From a collective community based on adat, the Minangkabau community has become an individualist community as a consequence of the teachings of Islam. Minangkabau people have more inclined towards abandoning adat rules and ties since they regard them as no longer fit with the situation and demands of the present era. A Minangkabau man is living in a family circle in modern sense and Western outlook.

### 32 POLITICAL SCIENCE

325.32 (921)

#### KAMTO UTOMO.

*Daerah Metro Lampung (Sumatera Selatan), transmigrasi pertanian dengan pola persawahan (Metro District, an agriculture transmigration project for wet rice).*

The author gives a survey of the history of this project, which started in 1935. The system followed was that of giving out section after section of cleared land to be divided into villageplots; each settler received slightly less than one hectare and the "bawon" system, prevailing in Java was used, where each earlier — settler accepted new-comers as his helpers, paid with a part of the yield. Construction work was carried out by a task force together with self-help system. The economical structure of this region shows now the type of Javanese lowland economy.

The economical farm-basis has now (in 1957) become no more than 0.5 hectare and only slightly more than half the planned area could be established as real wet-paddy fields.

As there are no reserves the new generation tries to expand in the area of the original inhabitants, by illegal occupation of forest land, etc.

On the present paddy fields there is no trace (yet) of a second wet paddy crop, nor of some other crop.

There is a surplus of labour, which cannot be absorbed.

After 1951 other projects, planned before the war, were carried out, but without taking into account that as a direct consequence of deforestation there is a decrease in water in the rivers.

There is unluckily no coordination between the National Reconstruction Service on behalf of veterans and the Transmigration Service as to problems of land utilization.

As long as the bottle-neck of irrigation has no adequate solution, the future of the Metro project is uncertain. The water for the recent projects has not enough nutritive value. The author suggests other ways than wet-ridge cultivation to replace shifting, viz a more rational dry crop cultivation combined with cattle raising, manuring and heavier farm implements. Urgently needed is a general revision at land utilization planning and a more efficient financing of agricultural credit; all money or most of it went to irrigation projects.

### 37 EDUCATION

37.01

#### SUGARDA POERBAKAWATJA.

Perkembangan rasa dan sikap susila (The development of moral sense and attitude).

Man is confronted with the various value of life in the biological field as well as in the social, economic, political and cultural fields.

Education plays an important role in the formation and the development of the moral sense and attitude. Efforts should be made to make the moral attitude active in character and man should refrain from being influenced by bad elements. The ethical and moral norms are very important in child's education. Therefore home, school and society as places for providing education should give good norms. It is necessary that a pedagogue in his educational activities pays attention to the differences in the development of thoughts and level of intellegence between a man and a woman.

As result of the difference of maturity in the moral sense and attitude there have occurred deviations from decent norms. These deviations appear to become violations of various level and diversity some of which can be forgiven and the others are labelled as crime. We can set up a healthy society merely with the employment of true educational activities. The activities should bring about a particular discipline and should provide a child an understanding that besides knowing moral acts we should also have knowledge on morality. It is pointed out that both factors do not run parallelly. The role of parents, teachers and society is of great significance in the effort to create moral and ethical norms.

### 39 CUSTOMS

391.5 (922)

#### PRIJOHUTOMO.

Upatjara pentukuran rambut di Wonosobo (Gembel's hair-cut ceremony in Wonosobo).

In the mountainous area of the Wonosobo Regency, Central Java, there is a number of children whose hair is not straight as usual but clustery.

This is called by the local population "gembel".

According to popular believes the gembel hair is caused among other things by the cool climate of the area. The matter appears to be one

of the problems which needs solution in the field of medical science. Some popular believes on the causes of the matter are submitted. After being 4 years old a child is asked by his/her parent on the desire of the former if, his/her gembel hair is cut. A child's request is met during the holding of the hair-cut ceremony. The hair-cut is conducted when a child is 7 years old in a ceremony held at night. The ceremony which is brightened by gamelan orchestra is attended by a number of invitees which offer contribution. The hair-cut is conducted with the use of a scissor during which a ring is placed on the hair. The already cut hair is kept by the parent. Having been cut, the hair of a child will grow normally.

#### 4 PHILOLOGY LINGUISTICS 401 PHILOSOPHY OF LANGUAGE

401.

DRIJARKARA, N.S.J.

Bahasa dalam filsafat Maurice Merleau-Ponty (Language in the philosophy of Maurice Merleau-Ponty).

Dealing with the problem of language according to the view of existentialism of the French philosopher Maurice Merleau-Ponty.

Language is not a system of conventional symbols for expressing opinion which already exists in the mind. Language is not merely a copy of thought or a copy of reality. Language and thought cannot be separated from each other. It is the exterior aspect of thought. Language may be called an exterior existence of images.

It is pointed out that in principle language is the expression of human experience. Expression can appear in the form of language. In his experience man constructs meanings. In fact experience and construction of meaning can not be separated. Both appear as a unit. Constructing meaning cannot be separated from act of expressing, therefore language in principle is the life of experience.

The foundamental idea of Merleau-Ponty's existentialism is that human being is not only "en soi or pour soi", but "dasein" or "Geist-in-Welt".

#### 41 GENERAL PHILOLOGY AND LINGUISTICS

415 (910)

SLAMET MULJONO.

Kata ganti diri bahasa Indonesia (Personal pronouns in the Indonesian language).

The use of personal pronoun in the society indicates that the speaker is conscious of his existence as individual. The use of "aku" (I) denotes that the speaker separates himself from the group of other individuals. Naturally in the use of "aku" there exist a society consisting of speaker and the others. The words "aku" and "engkau" (you) have an absolute opposite relationship. Without "you" the word "aku" is meaningless. "Aku" denotes the existence of "engkau", "aku" and "engkau" cooperate to enable them being used in language. It is noted that in some Indonesian dialects there

exist diverse form of first, second and third personal pronouns. A number of these are borrowed from foreign languages. The etymological study of these personal pronouns is aimed at tracing their origin in its connection with the various Polynesian languages.

## 5 NATURAL SCIENCES

### 57 ANTHROPOLOGICAL AND BIOLOGICAL SCIENCES

571.1/.9 (910)

AVE, J.B.

**Beberapa anasir kebudajaan Indonesia jang turut memperkaja kebudajaan dunia** (Some Indonesian cultural elements which participate in enriching world culture).

In the Paleolithic Age specific materials of Indonesia or Southeast Asia were not yet found and in general in that age it could not definitely be said the existence of the disseminating cultural centres. In the Neolithic Age there emerged a culture in posession of special marks covering the islands of Southeast Asia.

The importance of Southeast Asia for world culture has been universally recognized. Even several scholars stressed the role played by Southeast Asian culture of the Neolithic Age, one of the three important Neolithic cultural centres in he world. The Indonesian archipelago had become an important part of the Neolithic centre because of the existence of oldest remains found in the area and also because of its geographically favourable location.

With the development of technology, shipping and communications international trade and relations had expanded and these circumstances had enabled Indonesia to become a disseminating cultural centre in the beginning of the Christian Age. This situation had become more favourable after Indonesia developed its activities in the metallurgy especially in regard to the iron smelting works. After the coming of colonialism trade and shipping activities of the Indonesian decreased and these had caused the suspension of the international relations. The role of the Indonesian archipelago as a disseminating cultural centre had become meaningless. Several marked remains of the culture of the archipelago were those contributed to the tribes of North Australia and to the culture of the Netherlands. It is stated that cultural elements disseminated by Indonesia include among other things agrarian products, animal, technique of agriculture and the Indonesian language and art. It is concluded that the Indonesian archipelago had played and important role in enriching the world culture, a role which should be observed in compiling a history of Asia or a world history.

577.3 : 597.8

CHURCH, GILBERT.

**Ovulation in Bufo melanostictus.**

Although *B. melanostictus* develops mature eggs throughout the year,

the average ovarian weights were decidedly higher from September to November; the optimal breeding period being the end of the dry season; there is also a monthly rythm in ovulation, which may follow the lunar cycle.

Fat bodies were usually small or inconspicuous: no correlation was found with the maturity of eggs. The size of the oviducts could be always correlated with the egg maturity.

577.3 : 597.8

**CHURCH, GILBERT and SIE KIAN TJONG.**

The relationship of the concentration of liver glycogen to the maturity of the ovaries in *Bufo melanostictus*.

The concentration of liver glycogen was estimated colorometrically after digesting the liver with potassium hydroxide.

The glycogen content tends to rise when the ovaries have begun to develop new ova after ovulation, drops during the time of yolk deposition in the eggs, rises before ovulation and drops after ovulation.

During October and December there was a decrease of glycogen concentration in females (in males in December).

577.3 : 597.8

**CHURCH, GILBERT and GUSTI MOHAMAD HUSSAINI.**

The volume of the hypophysis in relation to the maturity of ovarian eggs in *Bufo melanostictus*.

In the male, the mean volume of the pituitaries shows a monthly fluctuation with a slight increase during November and December; that of the male may be relatively large than that of the female. In the female there is a positive correlation between the volume of the hypophysis and maturity fo the ovary. For a period after ovulation it shows great variation, but is reduced again in volume by the time new ova to develop.

577.3 : 597.8

**CHURCH, GILBERT and THE DJIN TEK.**

**Cyclic changes in the testes of *Bufo melanostictus*.**

Mature spermatozoa were found at all times. Generally, the right testis weighs less than left. Although the results are not yet conclusive, the weights tends to change in a monthly rythm corresponding to the monthly ovulation cycle in the female. The testis are heaviest when few females are ovulating.

577.3 : 597.8

**CHURCH, GILBERT and JANE A. KUSIN and TIO KIAN LING.**

**Cyclic changes in the hemoglobin concentration and the number of erythrocytes in *Bufo melanostictus*.**

The red blood cell count in *Bufo melanostictus* was found to be variable. There may be a correlation between the number of erythrocytes and the maturity of ovarian eggs (the lowest at the beginning of ova development,

highest at ovulation). These results have the determination of hemoglobine concentration. Males may show a higher erythrocyte count as compared with females.

577.3 : 597.8

**CHURCH, GILBERT and TJIOE DJIN YONG.**

Preliminary report on geographical differentiation in *Rana cancrivora* determined by means of alkali denaturation of the hemoglobin.

Using the method of hemoglobin denaturation developed by Singer, Chernoff and singer for the determination of hemoglobin groups *Rana cancrivora* from widely separated geographical areas. Work already in progress has shown a difference between the hemoglobin of *R. cancrivora* collected at Kemajoran (Djakarta), and that of the same species collected at Krawang. It is planned to similar hemoglobin determinations *R. cancrivora* from other areas. Since this species is widely distributed not only in the Indonesian and Philippine islands, but also on the continent, it is expected by this means to further the understanding of speciation in the Indo-Malaysian archipelago.

576.2. : 595

**HEEGAARD, P.E.**

Morphological relationship in Arthropods based mainly on Crustacean embryology.

The appendages of arthropods consist primarily of a stem and two branches (exo and endopod); the stem may consist of up to three joints (precoxa, coxa and basis), comparative morphology shows that the precoxa is a new development; it can be proved by embryology that in the mandible the precoxa actually represents the coxa.

It was proved by Hansen and Heegaard that the first maxilla in Euphausids consist of a true exopod and a pseudo-exopod, often mistaken for a true exopod.

These two exopods are also found in Decapods (in the second maxilla); in a few families of ecapods the pseudo-exopod is absent and here the exopod of the second maxilla is true exopod.

Crustaceae usually have 5 endopodial joints; some Syncaridae and Penaediae have 6, which is also found in Trilobites and many fossil arthropods.

Homological lines may be drawn to the appendages of Xiphosura.

It can be shown, that the sternal furca of the Copepods represent an external extension of the dissepiments between the post cephalic and thoracic areas and has no true appendical character.

Relations are projected to the transformed limbs in the comb organ of Scorpions and spinnerets of Spiders.

582 (910)

**ANWARI DILMY.**

**Taxanomi tumbuh-tumbuhan di Indonesia dan taxanomi tumbuh-tumbuhan modern di Amerika dan Eropah** (Plant taxonomy in Indonesia and modern plant taxonomy in America and Europe).

The author starts with a bibliographical, historical survey of the development and the principles of botanical taxonomy, plant collecting, inter-specific hybridisation, phaenotype and genotype, the difficulties encountered when these disciplines are applied to taxonomy, like cytology and chromosome-pattern.

In Indonesia these accessory and important disciplines cannot be applied for lack of scientists and there is the important factor that descriptive taxonomy should be carried on quickly as the vegetation tends to become destroyed. The Flora Malaysiana project which incorporates scientific help of many taxonomists outside Indonesia is a tremendous step forward. The author ends with a plea, that all forces should be bundled to prevent a downward trend in the field of botanical science in Indonesia.

582.

**GEMBONG TJITROSOEPOMO.**

**Dasar-dasar dalam mengadakan klassifikasi alam tumbuh-tumbuhan** (The bases of classification of the plant kingdom).

The author gives a historical survey of the development of classification, starting with the period of artificial system and ending with that of the natural system dating from the middle of the 19th century. The importance of other disciplines: palaeobotany, morphology, sero-diagnoses, geobotany, cytogenetics, etc. are stressed and expounded.

The author concludes, that notwithstanding the appliance of these disciplines the base of taxonomy will remain comparative morphology with a minimum use of apparatus.

581.19 : 633 18. (255)

**GO BAN HONG.**

**Analitis tumbuh-tumbuhan sebagai tjara untuk menetapkan kebutuhan akan unsur-unsur hara dari tanaman padi sawah.** (Plant analysis as a means for estimating the nutrient requirements of lowland rice).

Plant ash constituents of sawah rice are analysed, and the N/P04,N/K ratios are investigated. There exists an equilibrium between the elements in different parts of the plant. Under optimal conditions these equilibria move between certain limits. This state of equilibrium can be described as the ratio of two contents of elements. The leaves are very suited to use as an indicator of the nutritional status in the first growing period. At harvest the N/P04 ratio in the grain can be used as an indicator of the

N and P status in the plant. In case of potassium, the K content of the stalk can give valuable informations.

The rations of elements in a certain part of the plant can form an explanation concerning the effect of fertilizers on paddy yields. Indirectly it gives informations about the productivity of the soil, which is now under investigation.

582.751 : 664.33

### HARSONO HARDJOHUTOMO.

*Oxalis corniculata* bagi pembikinan bongkrek (*Oxalis corniculata* as a factor for making fermented coconut-residue).

Bongkrek is a fermentation product (by *Mucor*) of coconut-residue after extracting oil, either pure or mixed with a more or less high percentage of soybean or press residue of groundnuts. It is very cheap, although a low (6 percent) protein product.

The method of preparation is given. If the air-moisture content is high, bacteria develop as a slimy cover on the cakes, and the growth of *Mocur* is suppressed. The bacteria (*Bacterium cocovenenans Mertens*) produce a deadly poison which makes sometimes hundreds of victims.

Experiments showed that the lower the air-moisture the better *Mocur* develops and the less *Bacterium cocovenenans*.

One way to get rid of the bacteria, which lives on the rests of oil in the cakes in infection with *Monilia sitophila*, which breaks down oil more quickly than the bacteria, but the taste of the product is different and not appreciated.

Experiments carried out with aureo and terramycin showed inhibition of bacterial growth, but the price of these antibiotica is prohibitive.

Experiments were carried out with phytonzida; tomatin, obtained from *Lycopersicum pimpinellifolium* showed effect on bongkrek-bacteria.

From 15 different plant species press sap of leaves was tried out; of these only those of *Oxalis corniculata* showed a positive result; tubers and roots of several plants were negative.

Five different species of *Oxalis* were tried out, only *O. corniculata* proved to be effective.

Removal of the acids of the press sap of *Oxalis* had no influence on the positive result.

Experiments were carried out by mixing dry, pulverized *Oxalis* leaves with the cakes; they all showed lively growth of bacteria; contrarily if a solution of *Oxalis* press sap was added, which penetrated the cakes thoroughly no bacteria developed if a certain minimum of *Oxalis* was given.

581.165 (911)

### KOSTERMANS, A.J.G.H.

Vegetasi di Kalimantan (Vegetation in Borneo).

A general discussion on the different ways to approach the problem

of classification of vegetation; the limitations of aerial photography in this sense.

The absolute necessity to carry out an intensive ground survey by qualified botanists.

The lucky circumstance that the economical classification which is prevalent in Indonesia, cover most of the ecological classification, is stressed.

Although a floristic classification is the ultimate goal, the works should start with a life-form edaphon-bound classification. Braun-Blanquet's system is not well applicable here; the system of Burtt-Davy, Chamion and of late van Steenis are advisable. As the climate of Borneo is constant over existensive areas, edaphic climaxes are established, following in hierarchy the climatic climax. Mono and poly-slimax are discussed.

An emendation of van Steenis' system is proposed.

581.54 : 634.4 (910)

**MOENADJI WIDJOJO and R. HARJONO DANOESASTRO.**

Kemungkinan mempergunakan sistem Schmidt Ferguson dalam menentukan daerah mangga (*Mangifera indica L.*) di Indonesia (Possibility to use Schmidt — Ferguson's system of rainfall are as fit for mango cultivation in Indonesia).

Bijlhouwer qualified mango areas in Indonesia as follows: 4 consecutive dry months (not more than 60 mm rainfall), and during these dry months not more than an average 15 days of rain. Moreover the area should have no higher altitude than 350 m, and the soil should be deep and permeable.

In order to find out whether Schmidt — Ferguson's system of rainfall areas corresponds with Bijlhouwer's findings, the two are mapped out for Java and Madura. From these maps it elucidates that Bijlhouwer's areas correspond to types D, E and F of the other system, although there are discrepancies in both directions which make it necessary to find out in situ, whether Schmidt Ferguson's system is applicable for fixing mango areas. Two maps.

582.59

**MOESO SOERJOWINOTO.**

Beberapa tjabatan tentang bunga<sup>2</sup> *Paphiopedilum* (Cypripedilinae. Notes on the structure of the flower of *Paphiopedilum*).

Adams hypothesis of the fusion of the two lateral sepals into one, is expounded. An argument for it is derived from the aestivation as found in Liliaceae, furthermore there are still two ribs and there is often still a small apical incision. The author believes that the petals have followed the sepals in the same direction.

The author believes in correlation between the length of the ventral sepal and the labellum, the longer the former, the shorter the latter and vice-versa.

A survey is given with diagrams of the evolution of the gynostemium.

The author is in favour of Darwin's hypothesis of fusion of outer stamens and petal.

581.54 (910)

**SOEJONO HARDJOSOEWITO.**

Penjesuaian tjara Schmidt & Ferguson dengan Index de Martonne untuk membagi Indonesia didalam daerah<sup>2</sup> iklim (A combination of Schmidt & Ferguson's system with the Martonne's, Index in to divide Indonesia into climatic regions).

Mohr's system (1833) based on the number of dry and wet months has the objection that it uses the averages rainfall to designate wet or dry months; observations indicate, that the average figures weaken the pucture of dry season.

Schmidt & Ferguson's classification (1951) is considered an improvement, as it takes into account for every area the number of dry and wet months for year, during a period from 10 — 20 years and then taking the average of those values. The quotient of the average number of dry months and wet months indicates the climatic type.

Schmidt & Ferguson did not take into account the influence of temperature. The author hopes to have improved the former system by including de Martonnes's Index of aridity, which uses temperature and rainfall to fix the limits of wet and dry months.

Exhaustive tabulated figures and 4 maps.

**59 ZOOLOGY**

591.51.

**GARNADI PRAWIROSUDIRDJO.**

Psychologi hewan (Animal psychology).

A general survey of the history of the development of the science of animal psychology; a criticism of anthropocentric approach, illustrated with several examples. Discussed are problems of neurosis, of displacement activities, the similarities between human work therapy and that of animals to cure neurosis the convergence between animal learning by doing and modern (Montessori) science teaching. Cited from literature are examples that psychology can help taxonomy.

595.77

**INDROJONO, R.G.**

Mengemukakan adanya Diploptera dytiscoides Serville di Jogjakarta (Diploptere dytiscoides in Jogjakarta).

Report on the discovery of this species and discussion of its characters.

591.55 : 638.4 : 632.

**WIRJATI.**

Symbiose antara semut dan coccidae sebagai complex hama tanaman

(Symbiosis of ants and coccidae as a pest complex).

A survey on some literature on symbiosis and an enumeration of ant species with their symbionts. Indications for exterminating ants.

## 6 APPLIED SCIENCES 63 AGRICULTURE

632.9

DANDI SOEKARNA

Pemberantasan hama tumbuh-tumbuhan dengan insektisida modern (Pest control with modern insecticides).

Discussed are stomach, contact poisons and fumigants and the different ways in which they are applied and in which the insecticides are available.

As stomach poison in Indonesia usually copper or calcium arsenate are used, either as powder or in solution for spraying.

Furthermore sodium fluoride and barium fluorsilicate are used against mice, grasshoppers, cutworms and ants.

Californian mixture is used against plant lice. Some particulars are given on the application of derris, pyrethrum and nicotine.

In 1947 D.D.T. was applied here for the first time; in 1950 D.D.T. proved already to be ineffective against cabbage worm (*Plutella maculipennis*); likewise immunity against H.C.H. appeared after 3 years. The latter insecticide is not much favoured as it gives a bitter taste to potatoes and sweet potatoes.

A list is given of the pests against which D.D.T. or H.C.H. is used. The effect of insecticide application has had an improved effect on soybean cultivation.

Modern insecticides, like dieldrin, Adrin and Endrin have a prohibitive price.

632.3. : 582.736

HARJONO.

Penjakit-penjakit virus pada katjang pandjang (Virus diseases in the Cow-pea, *Vigna sinensis*).

After a survey of literature, the author describes the symptoms of mosaic (recognized are common mosaic and yellow mosaic) and of witches brown. Experiments were carried out with both virus.

Mosaic disease. Mechanical transmission is easy (centrifuged juice applied on carborundum-rubbed leaves is even more effective). Transmission experiments proved that only *Aphis medicaginis* Koch acts as a vector; transmission by seed does not happen. The properties of the virus (obtained by undiluted, centrifuged juice) were tested against temperature (inactivation after 10 minutes at 60° centigrade), dilution (inactivation at the rate of 1 : 100,000), longevity in vitro (inactivation after 24 hours

at 25 - 30° C); acidity (active permanent between pH and 8, optimum at pH 6.5). Of numerous hostplants only Phaseolus lunatus and Ph. radiatus proved susceptible to infection.

Sap inoculation of mosaic-diseased Arachis hypogaea and other legumes in cowpea gave no result.

Witches broom disease is mechanically transmitted; the diseased plants are sterile; Aphis medicaginis acts as a vector.

Experiments were carried out on effectiveness of stadia of the vector in transmission; alata and young nymphs were less effective. Other experiments showed, that after 8 day-retention some vectors were still infective; the infectious principle is not transferred to the progeny.

Acquisition threshold after feeding proved to be 5 hours; the same figure was found for the inoculation threshold.

Transmission experiments to numerous hosts gave a negative result; likewise no transmission could be obtained for witches-broom disease of Arachis hypogaea and Crotallaria anagyroides to the cowpea.

The only control advised is immediate removal of diseased plants.

Discrepancy in transmission possibilities by seeds here and abroad are ascribed to differences in virus.

632.7 : 576.8.093

### IDA NJOMAN OKA.

Pemberantasan biologis hama-hama tanaman dengan djasad-djasad renis (Biological pest-control by micro-organisms).

The author discusses some examples of pest control by means of bacteria, virus and fungi and the reason why it often failed. Experiments were carried out with *Bacillus thuringiensis* to control *Crocidiolomia binotalis* and *Plutella maculipennis* on cabbage, as these pests near Bandung have become already resistant against D.D.T., dieldrin and endrin. To find an economic culture medium (agar is too expensive) a suspension of katjang hidjau (dhal = green peas) proved to be satisfactory. The mortality of the pests was high, especially if a spreading medium was added.

631.1

### KARIMOEN, CH.

Mempraktekkan beberapa prinsip ilmu hajat dan peranan ternak dalam mempertahankan kehidupan manusia. (Application of biological principles to maintain human subsistence).

In Indonesia there is an overall shortage of protein in diet. Agriculture practice in this country with exception near urban centres, is merely producing primarily foodstuff of vegetable origin. With many illustrations of experiments the author demonstrates, that so-called dead soil, where agriculture is not possible any more can be revived by mixed-farming.

636.086 : 636.5

**LUBIS, D.A.**

**Penjelidikan tentang manfaat "vigofac" dalam ransum ternak ajam**  
(Experiments on the value of "vigofac" as an addition to chicken feed).

Experiments were carried out by regularly weighing chickens of which part were grown on an entirely vegetarian diet, either with or without addition of 0,5 percent vigofactor fizzier; another series were fed with a mixed diet, again with and without vigofac.

Two other series of experiments dealing with egg-pruction showed, that vigofac or in combination with terramycine had no influence.

634.774

**MOH. SALEH WIGNJOATMODJO.**

**Hasil-hasil sementara mengenai pengaruh acetylene terhadap berbunganya Ananas comosus** (Preliminary results of experiments on the effect of acetylene gos on Ananas comosus).

Field experiments were carried out with 3 varieties of pineapple to find out correlation between administering of calcium-carbide and the time of flowering.

After a discussion of mostly pre-war literature on the influence of agentia on flowering, the author gives results of experiments. Pine-apple plants of 15 — 18 months were used. After 11 months no flowering occurred and calcium carbide (200 — 300 mg) was applied by simply putting it around the plants and making it wet, to obtain acetylene gas. After about 40 days inflorescence primordia appeared. The Cayenne variety responded less and slower than the Bogor variety. Dosage with different quantities of calciumcarbide showed an optimal influnce with 300 mg per plant.

As it was difficult to work with even-aged plants, the correlation between weight of fruit and number of leaves was experimented with by administering calcium carbide; a positive correlation was found.

634.92

**SANJOTO.**

**Penjelidikan effisiensi dalam kerdja hutan** (Efficiency study in forestry labour).

Discussion on the objects of ergonomics and its appliance to forestry labour. The author gives a general survey of this science and its methods.

In 1956 a division for ergonomics was established at the Forest Research Institute. As there are no specialists in this field the author suggests to start a special course at the Agricultural Faculty and to make it possible for brilliant students to study abroad.

Some apparatus is discussed at length, but such apparatus are still not available.

The author further suggests more cooperation in this field between

the Forest Research Institute, the Agricultural Faculty (Division of Forestry) and the Research Institute of the Ministry of Labour.

631.46 : 632

### SOEHARDJAN.

Fauna tanah dan artinja sebagai hama tanaman (Soil fauna and its significance as plant pest).

As the soil fauna changes when the soil is taken into culture, it is necessary to investigate the original situation in order to get an insight in the numerous which cause a pest outbreak.

A large number of biocoenoses was investigated near Bogor and in Sumatra. Population measurements were carried out with a Berlese apparatus. Under normal conditions in one square meter are found between 6000 — 12000 individuals, which corresponds with figures in primaval forest. The same rank of figures was found in biotopes with closed vegetation (*Pueraria*, *Durio*); the figures are sometimes even higher (up to about 15000 individuals) than under forest conditions.

The same high figures were found under ruderal vegetation, under reed, bambu and grass. The highest figures (39000) was found in a tea garden estate, of which 70% belonged to *Collembola*. In alang-alang (cogonales) only 5500 individuals were found. Soil, cultivated for considerable periods with corn, monihot, sweet potatoes and hill rice had very low figures (800 — 2000), the lowest was found under pepper (300 — 700) where no detritus is present. Under grass, *Acarinae* comprise 50 — 70 percent of the total.

It was proved that the upper 5 cm of the soil had the densest population. Some special habitats were discovered for *Isopoda*, *Chelonethi*, *Acarina*, *Sympyla*, etc., of which some live in the upper soil layers only, and others go much deeper.

635.34 : 631.53

### SOETOMO SOEROHALDOKO and K.M. DARJANTO.

Laporan sementara usaha pembidjian dari *Brassica oleracea* var. *Capitata* di Indonesia untuk mengurangi import bidji. (Preliminary report on seed-production of *Brassica oleracea*, var. *capitata* in Indonesia, in order to decrease import of seed.).

For more than 30 years attempts have been made to produce cabbage seen in Indonesia. Grafting of the varieties Krop Pudjon which flower with variety Roem van Enkhuizen, which does not flower in Indonesia, did not result in a flowering of the former.

Experiments with grafting of the latter on radish and lobak are still carried out.

As under prevailing conditions import from seed from Holland is inhibited, it became urgent to take up experimenting intensively.

Cabbage of three local varieties in different stages of forming "balls" are cooled to 4 to 45 centigrade (hygrascopicity 95%, light and dark periods alternately 12 hours). After a certain period, the plants are transplanted in a cold climate (1400 m altitude). It was found that the longer the cold period is applied, the quicker the flowering. Furthermore plants without crop, flower more quickly, but are more liable to infection of *Xanthomonas campestris* and *Erwinia carobovora*. The longer the cold period, the easier the infection. Insufficient cold storage results in buds which do not open. A period of cold storage of 40 — 85 days was applied, the variety Roem van Enkhuizen started after 65 days, after cold storage during 77 days.

The author discusses the general principles underlying vernalisation and flowering, diseases and the necessity of selection.

631.5 : 633.15 (910)

**SUHARSONO.**

Kultur djagung heterosis dan kemungkinannya untuk Indonesia (Heterosis corn and its possibilities in Indonesia).

The author expounds his ideas on the possibilities of heterosis corn in Indonesia. Although its supremacy has been proved, he believes (with others) that under prevailing agro-economic conditions this system has no possibilities in Indonesia for several reasons: technical skill in selection; selection to be carried out in many scattered places; high cost, etc. Introduction over large areas of improved seed from self-fertilized crops is already very difficult. Corn is cultivated usually by small holders and on a small scale, moreover not as fodder but as human food; they cannot afford the high price of seed, which for heterosis corn should be bought for every new planting.

The author suggests the following measures: Most attention should be paid to simple, viz mass selection. Farmer education to improve or start manuring should be intensified ; a fertilizer plant is necessary.

Farmer organizations should be established for seed improvement Jones system should be considered the ultimate aim, after a whole system of development projects will have been carried out.

632.9 (910)

**SUTARDI R.G. and SOEMARTONO.**

Pemberantasan serangga pada pertanaman di Indonesia sesudah perang dunia ke II (Pest control in Indonesia after World War II).

Before World War II pest control was mainly carried out by mechanical (biological) and ecological methods, like the control of *Scirpophaga innotata* of padi by regulating the planting season (van der Good 1923 — 1928); the same with *Leptocorixa acuta*; another way was to take away the foodstuff of the pests, as was done with *Acrocercops cramerella* of cocoa, *Artona catoxantha* of coconut and *Stephanodorus hampei* of coffee. These

methods are not applicable any more, because of financial difficulties. Inorganic insecticides were used against tobacco and cabbage pests with success.

Nowadays arsenate and derris have disappeared from the markets. Against organic insecticides examples of immunity already appeared in Indonesia. Furthermore there is the problem that not only the pest, but also foes are destroyed as in the case of Earias fatia of cotton, which was transplaced by Tetranychus bimaculatus ; selective insecticides are necessary. The author warns against the use of poisonous insecticides as a lot of harm has already been done (lethal for cattle, fish, etc.).

632.7 : 578.08.

### TJOA TJIEN MO.

Memberantas hama-hama tumbuh-tumbuhan setjara biologis (Biological pest control).

A survey of literature on pests and their biological control. The author stresses the difficulties and discusses at length the results of former experiments of Brontispa pest of coconut, which was successful in Celebes, but failed in Java, because of obtained immunity.

637.127 : 546.17

### ZEEHUISEN, J.J.

Penjelidikan tentang methode tjepat untuk menetapkan zat nitrogen didalam susu (Experiments with quick methods to determine the nitrogen content in milk).

Two quick methods to estimate the nitrogen content : the Kofranyi and Beets method have been tested under conditions prevailing in Indonesia. The author explains both methods at length. It is proved, that the modified Kjelldahl method of Beets is the better one.

The first stage of convalescence after piroplasmosis might be demonstrated with the Kafranyi-method. During this period the fat content does not change and Marquardt's formula to derive the protein content from the fat content does not work.

The methods experimented with, have consequently clinical value.

## 66 CHEMICAL TECHNOLOGY

663.95 (910)

### THIO GOAN LOO

Sedjarah dan beberapa segi dari Penjelidikan-penjelidikan mengenai pembuatan teh di Indonesia. (History and some aspects of tea — processing research in Indonesia).

The first specialist on teaplanting in Indonesia was Loman, who produced his first report in 1894. Nanninga in 1898 was the first specialist in tea-manufacturing. The first tea-experiment station was established in 1916,

which was much enlarged and split up in different sub-stations in the following years. In 1957 some of the latter were closed down ; research on tea plants processing is still carried out in Bogor.

Quick drying gives about the same result as slow drying and is suggested for tea plants short of room.

Experiments with fermentation at low temperatures confirmed those of Hall and Dickson (1934). It is not possible to transform a lowland quality in this way into a highland quality.

After World War II a method of tea-processing without withering was worked out by Verhaar. This method is only advisable under abnormal conditions, as loss of tea and increase of inferior quality results.

## 9 BIOGRAPHY. HISTORY 93 HISTORY

93 : 294 (910)

MANTRA, I.B.

Pengertian Siva-Buddha dalam sedjarah Indonesia (The concept of unity of Siva-Buddha in the history of Indonesia).

Due to the existence of concept in East Java that Siva and Buddha are two religions which are one in character, a number of scholars have already made efforts to study the development of the religions. Although general pattern connected with the place of birth of the religions (India) are still observed the unity of the two religions has its own pattern and shows its national characteristic. In the Sivaism and Buddhism stress is laid on the principle of duality which are in nature static (Nivrtti) and dynamic (Pravrtti). This fact has led to the conclusion that the form of their deitic concept is basically similar. According to Dr Rasser the process toward the unity of Siva and Buddha religions is connected with the local tradition which has already existed prior to the advent of the two religions. Some similarities in outlooks and principle between the Sivaism and Buddhism are discussed.

93 : (921)

SOEKMONO, R.

Tentang lokalisasi Sriwidjaja (On the localisation of Sriwidjaja).

Before 1918 the existence of the Sriwidjaja kingdom was not yet known. Prof. G. Goedes has offered a contribution to the study of Indonesian history by asserting in his "Le Royaume de Criwijaya" the existence of the Sriwidjaja kingdom. It has been generally accepted that Sriwidjaja is situated in the present Palembang area.

The author expressed his objection to localising Sriwidjaja in Palembang only. He based his assertion on the fact that there are very few historical remnants of Sriwidjaja in that area. It is proposed that besides conducting research by historical sources in the form of Chinese, Arab, Greek and Indian Journals, attention should also be paid to localisation in geomorphological way. The aerial as well as land survey has substan-

tiated the hypothesis that the coastal line in ancient times was not yet leading to the eastern direction so that Djambi should have been the most suitable site for localising Sriwidjaja state. There was not a single data for localising Sriwidjaja in Palembang; but on the contrary all available data are pointing towards Djambi.

93 : (922)

### **SUTJIPTO WIRJOSUPARTO.**

**Apa sebabnya daerah Kediri dan sekitarnya muncul dalam sejarah (Why Kediri and its surrounding areas have come up in history).**

In the author's opinion the river Bratas has offered possibilities toward the cultural development of its surrounding areas which has determined the course of history in East Java. This working paper gives some remarks on how far the validity of Toynbee's "challenge and response" theory of cultural development applicable in the case of Indonesia. According to Toynbee a form of culture capable of staging response to the natural and human challenges will be successfull in obtaining a strong basis in its further development.

Although he holds the view that only original culture in possession of qualifications which can maintain its development such as the cultures of Egypt, Sumeria, India and China, whereas the culture of ancient Khmer is regarded as a non-original one, the author is of the opinion that the culture of Kediri though in its development has been influenced by the Indian culture is an original culture.

Although influenced by the Indian culture, the culture of Kediri still has original elements, and condition has justified the calling of the birth of an original culture of Kediri.

Further discussion deals with the subjects on the geographical survey of Kediri and its surroundings, the prehistory of Kediri area, the mythe of river Brantas and its connection with the mythe of Agastya.

93 : (921)

### **YAMIN, H.M.**

**Penjelidikan sejarah tentang negara Sriwidjaja dibawah kekuasaan radjakula Sailendra (Historical study on Sriwidjaja Kingdom under the rule of Sailendra dynasty).**

The author gives an outline on historiography and research on the State of Sriwidjaja and the Kingdom of Sailendra in the Indonesian history from 1876 till 1958. It is pointed out that in the independent era since 1945, a review of the ancient and new historical data by utilising Indonesian constitutional knowledge within the framework of national history by giving prevalence to the factor of national independence in the formation of the State

is necessary. It is suggested that the history of Sriwidjaja State should be divided into four periods :

1. the era of rising from 392 till 683,
2. the era of development from 683 till 1178,
3. the era of decline from 1178 till 1286 and
4. the era of ruin from 1286 till 1406.





A selected list of periodicals and materials which are regularly abstracted and the name of institutions and scientific organizations which publish the periodicals.

|   |  |
|---|--|
| Annales Bogorienses (Irregular issue).              | Botanic Gardens of Indonesia.  |
| Bahasa dan Budaja (Bimonthly).                      | Linguistic and Cultural Inst., Fac. of Arts, University of Indonesia.            |
| Berita Dinas Purbakala (Irregular).                 | Archaeological Service.  |
| Berita M.I.P.I. (Bimonthly).                        | Council for Sciences of Indonesia.   |
| Communications Veterinariae (Irregular).            | Faculty of Veterinary Science, University of Indonesia.                          |
| Ekonomi dan Keuangan Indonesia (Monthly).           | Foundation for Economic and Financial Publications.                              |
| Hemera Zoa (Irregular).                             | Association of Veterinarians of Indonesia.                                       |
| Idea (Irregular).                                   | Entomological Society of Indonesia.  |
| Madj. Ilm. Bhs., Ilm. Bumi dan Kebud.               | Institute for Indonesian Culture.  |
| Madjalah Hukum (Irregular).                         | Indonesian Lawyers Society.  |
| Madjalah Hukum dan Masjarakat. (Quarterly).         | Association of Indonesian Jurists.   |
| Madjalah Kedokteran Indonesia (Monthly).            | Indonesian Medical Association.  |
| Madjalah Kesehatan Angkatan Perang (Monthly).       | Physicians of the Health Departments of the Indonesian Army, Navy and Air Force. |
| Madjalah Persatuan Dokter Gigi Indonesia (Monthly). | Dental Surgery Association.  |
| Masalah Bangunan (Quarterly).                       | Regional Housing Centre.   |
| Padjadjaran.  | Faculty of Law and Social Sciences, Padjadjaran University, Bandung.             |

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| Pemberitaan (Irregular).   | General Agricultural Research Station.  |
| Pemberitaan (Irregular).   | Inland Fisheries Research Station.  |
| Penggemar Alam (Irregular).  | Natural History Society.  |
| Pengumuman (Irregular).  | Forest Research Institute.  |
| Penjelidikan Laut di Indonesia (Irregular).  | Institute of Marine Research.   |
| Publikasi (Monthly, quarterly, and annually).  | Central Bureau of Statistics.   |
| Publikasi (Irregular).   | Institute of Geography, Topographical Service of the Army, Minister of Defence. |
| Publikasi (Irregular).   | Meteorological and Geophysical Institute.                                       |
| Reinwardtia (Irregular).   | Botanic Gardens of Indonesia.   |
| Rimba Indonesia (Irregular).   | The Society of Foresters in Indonesia.  |
| Swatantra (Monthly).   | Regional Development Foundation.  |
| Tehnik Pertanian (Monthly).  | Association of Officials of Agricultural Technical Dept.                        |
| Thesis and scientific papers. (Irregular).   | Universities and scientific bodies.   |
| Treubia, a Journal of Zoology and Oceanography of Indo-Australian Archipelago (Irregular). | Botanic Gardens of Indonesia.   |
| Warta Anatomia (Irregular).  | Medical and Dental Faculties of the Gadjah Mada University.                     |
| Warta dan Massa (Bimonthly).   | Press and Public Opinion Institute.   |